

TRANSVERSE MAGNETIC FIELD VOLTAGE ISOLATOR

ABSTRACT OF THE DISCLOSURE

An SEM wherein the entire imaging apparatus of the SEM is supported on air bearings. A multi-stage differentially pumped vacuum seal area provides a localized vacuum zone for wafer examination. A wafer leveling mechanism insures that the top surface of the wafer being examined is placed and maintained in a position level with the surface upon which the air bearing supported SEM rests. The SEM can move on its air bearings such that any portion of the wafer can be examined. A voltage-isolating passageway for providing high voltage isolation between a component maintained at high DC voltage and a component maintained at a substantially lower voltage is described. The voltage-isolating passageway incorporates a transverse magnetic field across its passageway. The voltage-isolating passageway includes at least two magnets that are positioned along opposite and exterior surfaces of the passageway. A semi-conductive coating can be applied to the interior passageway surface.